

## Derived 5-cycle MPG Calculations For Electric Vehicles

Please Enter:

Model Year: **2018**  
 Manufacturer Name: **Tesla Motors Inc**  
 Model Name: **Model 3 Long Range**  
 Test Date: **11/1/2017**

Values in Yellow fill are used on FE Labels (window stickers)

Used for FCG

### I. Calculate Electric vehicle FE Label city, Hwy, Combined FE values using the 2008 (derived 5-cycle) method and the 30% cap method:

Enter unadjusted unrounded kW-hr/100mi Values (in red text blocks) as determined from SAE J1634:

2008 FE Label method (Derived 5-cycle)

	City (round mpg to 0.1mpg)	Highway (round mpg to 0.1mpg)	Combined Calculated unadjusted combined Units
Elect veh FE unrounded kW-hr/100 mi	17.2869	19.1292	18.1159 kW-hr/100 mi
Elect veh FE converted to mpg	195	176.2	186.0663 mpg

Calculate derived 5-cycle mpg:	99.6	94.9	97.4 mpg
convert back to kW-hr/100 mi:	33.8	35.5	34.6 kW-hr/100 mi Derived 5-cycle
Percent adjustment mpg:	48.9%	46.1%	47.7% percent
MPG w/ % Cap	136.5000	123.3400	130.2464 MPGe with Cap
convert back to kW-hr/100 mi:	24.6923	27.3269	25.8779 kW-hr/100 mi with % Cap
			25.9

2018 Label Values:

Rounded MPG w/% cap:

Rounded kW=hr/100 mi:

136	123	130
25	27	26

### II. Calculate Electric vehicle driving ranges using the unadjusted SAE J1634 method and the 2008 (derived 5-cycle) method:

Enter unadjusted City & Hwy Range Values in miles (in red text blocks) as determined from SAE J1634:

	City Range	Hwy Range	Combined Range	Rounded Range	Units
Calculate unadjusted driving range:	492.8	445.34	471.4430	471	miles
Calculate adjusted driving range (2008 method, No Cap):	251.7	239.9	246.7859	247	miles
Calculate adjusted driving range (2008 method, 27% Cap):	345.0	311.7	330.0101	330	miles
				310	miles

Method:

Unadjusted (SAE J1634)

2008 (derived 5-cycle, mpg-based, No Cap)

2008 (derived 5-cycle, mpg-based, 30% Cap)

<-----Voluntary Reduction of AER on label

### III. Calculate Electric vehicle annual fuel cost and 5-year savings, per 40 CFR 600.311-12€ - To be confirmed with EPA on 2018 values adjustment on cost savings

2008 MPG Factors:

ref. 40 CFR 600.210-08

City Intercept: 0.004091  
 City Slope: 1.1601  
 Hwy Intercept: 0.003191  
 Hwy Slope: 1.2945

Enter Average 2018 5-year Fuel Cost: **\$6,750**  
 Enter 2018 U.S. electricity costs: **\$0.13** per kw-hr  
 (from CD-16-18 for 2018)

Calculate unrounded adjusted combined miles/kw-hr: 3.864301 mi/kw-hr

Petroleum Equivalency Factor  
 for electricity; ref 10 CFR 474.3  
 33,705 watt-hr/gallon w/o 6.667 CAFE incentive  
 no fuel fired accessories

Annual Miles	Cost	Units	Unrounded Annual Fuel Cost*	Method	2018 Label Rounded Annual Fuel Cost	2018 Label 5-year Amount You Save:
15,000	\$0.13	per kw-hr	\$674.70	2008 (derived 5-cycle, mpg-based, No Cap)	\$650.00	\$3,500
15,000	\$0.13	per kw-hr	\$504.62	2008 (derived 5-cycle, mpg-based, % Cap)	\$500.00	\$4,250

\*Note: Annual fuel costs should be ASTM rounded to the nearest \$50.

QR Code: <http://fuelconomy.gov/qr?id=2017TSL301>